

We claim:

1. A carrier for processing a surface of the workpiece using a process surface, comprising:
 - a carrier housing;
 - a base configured to hold the workpiece and movable with respect to the carrier housing; and
 - a pressure member between the base and the carrier housing configured to induce the base to apply a predetermined force onto the process surface.
2. The carrier of claim 1, wherein the pressure member includes a spring.
3. The carrier of claim 1, wherein the pressure member is a compressed fluid controlled by a pneumatic system.
4. The carrier of claim 1, wherein the process surface is a surface of a workpiece surface influencing device.
5. The carrier of claim 1, wherein the process surface is a surface of a polishing pad.
6. The carrier of claim 1, wherein:
 - the carrier housing includes a cavity; and
 - the base includes a shaft configured to slide within the cavity.
7. The carrier of claim 6, wherein the pressure member attaches the base and the carrier housing within the cavity.
8. The carrier of claim 7, wherein the process surface is compressible and has a spring constant greater than the pressure member.
9. The apparatus of claim 6, wherein the cavity includes bearings to minimize friction between the shaft of the base and the carrier housing as the shaft moves within the cavity.

10. The carrier of claim 1, wherein the carrier housing includes a stop member and the shaft of the base includes a limiting member configured to mate with the stop member when the pressure member moves the shaft beyond a predetermined travel limit.
11. The apparatus of claim 10, wherein the pressure member is configured to exert substantially the same force against the process surface throughout the predetermined travel limit range of the base.
12. The apparatus of claim 1, wherein the carrier housing and the base are rotatably coupled to rotate as a single unit.
13. The apparatus of claim 12 further comprising a flexible diaphragm coupled to the base and the carrier housing.
14. A method for processing a semiconductor wafer using a constant force carrier head comprising the steps of:
 - holding the semiconductor wafer with a base; and
 - urging the base with a pressure member to produce a substantially constant force on a surface of the semiconductor wafer against a process surface.
15. The method of claim 14, wherein the process surface is a surface of a workpiece influencing device
16. The method of claim 14, wherein the process surface is a surface of a polishing pad.
17. The method of claim 14, further comprising the step of relative motion between the base and the process surface.
18. The method of claim 14, further comprising the step of rotating the carrier head.
19. The method of claim 18, wherein the carrier head and the base rotate as a unit.
20. The method of claim 14, wherein the pressure member produces a constant force along a displacement axis against the process surface.

21. The method of claim 14 further comprising the step of limiting a range of motion along a displacement axis of the base against the process surface.
22. The method of claim 14, wherein the pressure member is a spring.
23. The method of claim 22, wherein the process surface is compressible.
24. The method of claim 23, wherein a spring constant of the process surface is greater than the pressure member.
25. The method of claim 14, wherein the pressure member is pneumatic.
26. An article of manufacture using the method of claim 14.
27. A method of processing a surface of a workpiece on a process surface while holding the workpiece with a carrier head, comprising:
 - contacting the surface of the workpiece to the process surface with a predetermined pressure, wherein the carrier head is configured to move contacting surfaces along a displacement axis; and
 - processing the surface of the workpiece with the processing surface while maintaining the predetermined pressure.